

Claim Amendments

Please cancel Claim 24 without prejudice to or disclaimer of the subject matter recited therein.

Please amend Claims 1, 2, 8, and 9 to read as follows.

Please add new Claims 26-33 to read as follows.

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1. **(Currently Amended)** An image-forming process for use in an electrophotographic system employing an image forming apparatus equipped with a photosensitive member including a photoconductive layer composed of a silicon-based non-monocrystalline material and a surface layer composed of a non-monocrystalline material formed in the foregoing order on a peripheral surface of a cylindrical electroconductive substrate, and a cylindrical intermediate image-transfer element in contact with the surface layer, and rotating the photosensitive member and the intermediate image-transfer element at a prescribed relative speed, said image-forming process comprising:
- an electrifying step of electrifying the surface layer;
  - a latent image-forming step of forming an electrostatic latent image by projection of light onto the electrified surface layer;
  - a developing step for forming a toner image by providing a toner on the electrified surface layer bearing the electrostatic latent image;
  - an image-transferring step for transferring the toner image onto the intermediate image-transfer element;

repeating said electrifying step, said latent image-forming step, said developing step, and said transferring step a plurality of times to form a plurality of toner images in superposition on the intermediate image-transfer element; and

a transferring step of transferring the toner images formed in superposition on the intermediate image-transfer element onto a recording sheet,

wherein the photosensitive member and the intermediate image-transfer element are brought into contact at a contact nip line and at a contact temperature in a range of 15°C to 60°C at the prescribed relative speed to achieve a kinetic frictional force deviation (a standard deviation of a kinetic frictional force), which is less than an average value of the kinetic frictional force.

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2. **(Currently Amended)** The image-forming process according to claim 1, wherein a kinetic frictional deviation coefficient is not higher than 0.1, where the kinetic frictional deviation coefficient is a rate of change of the kinetic frictional force deviation per unit length in a length direction along the contact nip line with a contacting linear pressure, and

wherein the contacting linear pressure is defined as being a force applied to contact the photosensitive member with the intermediate image-transfer element per unit length in the length direction.

3. **(Previously Amended)** The image-forming process according to claim 2, wherein a range of a variation of the kinetic frictional force deviation coefficient is not more than 0.02 for a change in the contact temperature in the range of 15°C to 60°C.

4. **(Previously Amended)** The image-forming process according to claim 2, wherein the surface layer of the photosensitive member is composed of a non-monocrystalline material including at least one of silicon atoms and carbon atoms, and wherein a range of a variation of the kinetic frictional deviation coefficient is not more than 0.01 for a change in the contact temperature in the range of 15°C to 60°C.

5. **(Previously Amended)** The image-forming process according to claim 1, wherein a ratio of a change of a dark portion electrifiability to a change of temperature of the surface layer is within  $\pm 2\%/^{\circ}\text{C}$ .

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6. **(Previously Amended)** The image-forming process according to claim 5, wherein a characteristic energy of a tail of a valence band in an exponential energy distribution is in a range of 50 to 70 meV.

7. **(Previously Amended)** The image-forming process according to claim 1, wherein a center-line average roughness  $R_a$  of the surface layer is in a range of 0.01 to 0.9  $\mu\text{m}$ , and

wherein an average inclination  $\Delta a$  of a roughness curve  $f(x)$  is in a range of 0.001 to 0.06, as defined by the following equation:

$$\Delta a = \frac{1}{\ell} \int_0^{\ell} \left| \frac{dy}{dx} \right| dx$$

where  $y$  is a height in a  $Y$  direction at a point of the curve extending a distance  $x$  in an  $X$  direction, and  $\ell$  is a length of the curve.

8. **(Currently Amended)** An image-forming process for an electrophotographic system employing an image-forming apparatus equipped with a plurality of photosensitive members, each of the plurality of photosensitive members including a photoconductive layer composed of a silicon-based non-monocrystalline material and a surface layer composed of a non-monocrystalline material formed in the foregoing order on a peripheral face of a cylindrical electroconductive substrate, and an image-transferring belt for holding and delivering a recording sheet with successive contact, respectively, with the plurality of photosensitive members, and moving the plurality of photosensitive members and the recording sheet at a prescribed relative speed, the image-forming process comprising:

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an electrifying step of electrifying the surface layer of one of the plurality of photosensitive members;

a latent image-forming step of forming an electrostatic latent image by projection of light onto the electrified surface layer;

a developing step for forming a toner image by providing a toner on the electrified surface layer bearing the electrostatic latent image;

an image-transferring step for transferring the toner image onto the recording sheet;  
and

repeating said electrifying step, said latent image-forming step, said developing step, and said image-transferring step to form a plurality of toner images in superposition on the recording sheet,

wherein the plurality of photosensitive members, respectively, and the recording sheet are brought into contact at a contact nip line and at a contact temperature in a range of 15°C to 60°C at the prescribed relative speed to achieve a kinetic frictional force deviation (a standard deviation of a kinetic frictional force), which is less than an average value of the kinetic frictional force.

9. **(Currently Amended)** The image-forming process according to claim 8, wherein a kinetic frictional deviation coefficient is not higher than 0.1, where a kinetic frictional deviation coefficient is a rate of a change of a ratio of the kinetic frictional force deviation per unit length in a length direction along the contact nip line with a contacting linear pressure,

wherein the contacting linear pressure is defined as being a force applied to contact each of the plurality of photosensitive members with the recording sheet per unit length in the length direction.

10. **(Previously Amended)** The image-forming process according to claim 9, wherein a range of variation of the kinetic frictional force deviation coefficient is not more than 0.02 for a change in the contact temperature in the range of 15°C to 60°C.

11. **(Previously Amended)** The image-forming process according to claim 9, wherein the surface layer of the photosensitive member is composed of a non-monocrystalline material including at least one of silicon atoms and carbon atoms, and

wherein a range of a variation of the kinetic frictional deviation coefficient is not more than 0.01 for a change in the contact temperature in the range of 15°C to 60°C.

12. **(Previously Amended)** The image-forming process according to claim 8, wherein a ratio of change of a dark portion electrifiability to a change in temperature of the surface layer is within  $\pm 2\%/^{\circ}\text{C}$ .

13. **(Previously Amended)** The image-forming process according to claim 12, wherein a characteristic energy of a tail of a valence band in an exponential energy distribution is in a range of 50 to 70 meV.

14. **(Previously Amended)** The image-forming process according to claim 8, wherein an average roughness  $R_a$  of a center line of the surface layer is in a range of 0.01 to 0.9  $\mu\text{m}$ , and

wherein an average inclination  $\Delta a$  of a roughness curve  $f(x)$  is in a range of 0.001 to 0.06, as defined by the following equation:

$$\Delta a = \frac{1}{\ell} \int_0^{\ell} \left| \frac{dy}{dx} \right| dx$$

where  $y$  is a height in a  $Y$  direction at a point of a curve extending a distance  $x$  in an  $X$  direction, and  $\ell$  is a length of the curve.

24. **(Cancelled)**

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25. **(Renumbered)\*** The image-forming process according to Claim 1, wherein the intermediate image transfer element is a roller.

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26. **(New)** An image-forming process for use in an electrophotographic system employing an image forming apparatus equipped with a photosensitive member including a photoconductive layer composed of a silicon-based non-monocrystalline material and a surface layer composed of a non-monocrystalline material formed in the foregoing order on a peripheral surface of a cylindrical electroconductive substrate, and an intermediate image-transfer element in contact with the surface layer, and rotating the photosensitive member and the intermediate image-transfer element at a prescribed relative speed, said image-forming process comprising:

an electrifying step of electrifying the surface layer;

a latent image-forming step of forming an electrostatic latent image by projection of light onto the electrified surface layer;

C37 a developing step for forming a toner image by providing a toner on the electrified surface layer bearing the electrostatic latent image;

an image-transferring step for transferring the toner image onto the intermediate image-transfer element;

repeating said electrifying step, said latent image-forming step, said developing step, and said transferring step a plurality of times to form a plurality of toner images in superposition on the intermediate image-transfer element; and

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\*This claim was improperly numbered as Claim 16 as one of two newly-presented claims in the Amendment filed March 4, 2003. The Examiner *inter alia* renumbered this claim in the Official Action dated April 1, 2003.

a transferring step of transferring the toner images formed in superposition on the intermediate image-transfer element onto a recording sheet,

wherein the photosensitive member and the intermediate image-transfer element are brought into contact at a contact nip and at a contact temperature in a range of 15°C to 60°C at the prescribed relative speed to achieve a kinetic frictional force deviation (a standard deviation of a kinetic frictional force), which is less than an average value of the kinetic frictional force.

27. (New) The image-forming process according to Claim 26, wherein the intermediate image-transfer element comprises a belt.

28. (New) The image-forming process according to claim 26, wherein a kinetic frictional deviation coefficient is not higher than 0.1, where the kinetic frictional deviation coefficient is a rate of change of the kinetic frictional force deviation per unit length in a length direction along the contact nip with a contacting linear pressure, and

wherein the contacting linear pressure is defined as a force applied to contact the photosensitive member with the intermediate image-transfer element per unit length in the length direction.

29. (New) The image-forming process according to claim 28, wherein a range of a variation of the kinetic frictional force deviation coefficient is not more than 0.02 for a change in the contact temperature in the range of 15°C to 60°C.



30. (New) The image-forming process according to claim 28, wherein the surface layer of the photosensitive member is composed of a non-monocrystalline material including at least one of silicon atoms and carbon atoms, and

wherein a range of a variation of the kinetic frictional deviation coefficient is not more than 0.01 for a change in the contact temperature in the range of 15°C to 60°C.

31. (New) The image-forming process according to claim 26, wherein a ratio of a change of a dark portion electrifiability to a change of temperature of the surface layer is within  $\pm 2\%/^{\circ}\text{C}$ .

32. (New) The image-forming process according to claim 31, wherein a characteristic energy of a tail of a valence band in an exponential energy distribution is in a range of 50 to 70 meV.

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33. (New) The image-forming process according to claim 26, wherein a center-line average roughness  $R_a$  of the surface layer is in a range of 0.01 to 0.9  $\mu\text{m}$ , and wherein an average inclination  $\Delta a$  of a roughness curve  $f(x)$  is in a range of 0.001 to 0.06, as defined by the following equation:

$$\Delta a = \frac{1}{\ell} \int_0^{\ell} \left| \frac{dy}{dx} \right| dx$$

where  $y$  is a height in a  $Y$  direction at a point of the curve extending a distance  $x$  in an  $X$  direction, and  $\ell$  is a length of the curve.